A climate-resilient cooperative business model for cassava processing

Producer organization: The Simplified Cooperative Society (SCoopS) NOVI VA

Togo - Climate Resilience Case Study No. 8

Toviho Gaglo, 2020

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"Far away in our small village, who knows us? You have pulled us higher than we could have imagined. To all those who have contributed to bringing us to this point today we say a sincere thank you. "Mrs. Mihinso Adamah, President of SCoopS NOVI VA.

Cover photo: Leader of the NOVI VA simplified cooperative society at the cassava processing plant in Togo - Photo: Gaglo, 2020.

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EXECUTIVE SUMMARY

Agriculture is the essential engine of the Togolese economy. It is characterised by a low technical level and a low level of equipment on farms. It employs around 60% of the working population and contributes to 40% of the national GDP (PND 2018-2022). Togo's agriculture depends essentially on climatic conditions. This agriculture is not immune to the vagaries of the weather and suffers cruelly from a lack of modernisation despite the "green revolution" programmes developed by the Togolese government since the 1970s.

In southern Togo, particularly in the commune of Anfoin (Préfecture des Lacs), agricultural production suffers subject to the vagaries of the climate and poor soils. Tokpo farmers, for their subsistence, grow food crops (maize as a staple), legumes (beans and groundnuts) and vegetables (tomatoes, chilli, ademe, gboma). Irregular rainfall affects all these crops, which are giving way to the production of cassava, a crop that is somewhat more resilient to climate change.

The NOVI VA cooperative is an agricultural enterprise created on April 14, 1992 and involved in the procurement and processing of cassava (*Manihot esculenta*) into a variety of products.

Cassava and wood energy (used for processing) are the essential elements for the functioning of this agricultural enterprise. Its raw materials are also affected by the effects of climate change. Irregular rainfall, reduced soil fertility and deforestation (driven in part by declining yields that require a search for more cultivable land) have led to a decrease in cassava yields, and a lack of fuelwood, making the NOVI VA business model less secure.

Due to the increasing cost of cassava production and processing, the NOVI VA cooperative society is opting for climate-resilient options. Among these options, we can note the development of adaptation mechanisms linked to the promotion of member empowerment. In terms of agroecology, the NOVI VA members have been promoting the use of agroforestry systems (with nitrogen fixing trees such as Leucaena leucocephala to improve soil fertility), soil conservation and mulching techniques, the integration of crops and livestock to improve organic manure, and the use of Mucuna fallows. More resistant varieties of Cassava are being planted to maintain yields in the face of changing climate patterns. Dedicated woodlots have been established to provide the fuelwood needed to process cassava products. In the meantime, while these woodlots and agroforestry systems mature, the cooperative is making use of coconut shells and agricultural residues.

Alongside these agronomic developments, the NOVI VA cooperative has been diversifying economically its product range which now includes gari, tapioca, cassava starch powder and bread flour. New packaging and labelling have been introduced to enable the cooperative to sell products into supermarket chains. While still under development, these ambitions will improve economic resilience and increase profit margins.

The advances described above have become possible through the social networks that NOVI VA has established through its membership of the Central Cereal Producers' Association of Togo (CPC), and to the overarching Togolese Coordination of Farmers' and Agricultural Producers' Organisations (CTOP). Both organisations have helped NOVI VA identify useful contacts and bring in project support – including through the FFF, a programme that directly finances forest and farm producer organisations (FFPOs).

Today, the NOVI VA cooperative model provides income to its (mostly women) members as well as temporary employment to young men and women in the Tokpo locality and is steadily building demand for the quality of its processing products on national and international markets. All these advances will help with the resilience of farmers around Topko in Togo.

1. INTRODUCTION

1.1 NAME AND VISION

The name of the Forest and Farm Producer Organization (FFPO) is SCoopS NOVI VA (Société Coopérative Simplifiée NOVI VA). It is an agricultural cooperative for cassava processing. The vision of NOVI VA is to empower its members through the industrialisation of its cassava processing unit. As a result, it aims to make cassava processing enterprises in Togo and export their products to other countries in West Africa.

The vision of SCoopS NOVI VA has five objectives, namely:

- To improve the living conditions of its members on a socio-economic and cultural level,
- To promote sustainable and environmentally friendly agriculture,
- To train members in agricultural techniques of product processing,
- To organizing the marketing of products,
- To mobilize internal and external resources for members.

Objectives 2, 3 and 4 relate to resilience both in terms of ecological resilience (sustainable agriculture) and economic resilience in terms of diversification of processing products and markets to avoid dependence on a single product and a single market.

1.2 LOCATION

In terms of geographical location, SCoopS NOVI VA is in the Maritime Region of Togo, in the Lacs Prefecture, and in the commune of Anfoin (Lacs 4) and more precisely in the village of Tokpo (Figure 1). Togo is a coastal country in West Africa, and is located between latitudes 6°-11°N and longitudes 0°-2°E. It is bordered to the north by Burkina Faso, to the east by Benin and to the west by Ghana.

According to the RPGH, (2011) the population of Togo is estimated at around 07 million inhabitants. In the Lakes Prefecture, about 86% (147,257 inhabitants) live in rural areas (RPGH, 2011) and are mostly farmers. The latest projections estimate the Togolese population at around 8.6 million inhabitants in 2020 for a density of 152 Hab/km2.

Togo has a very diversified biodiversity and very complex ecosystems (SPANB, 2010- 2020) with several socio-economic opportunities.

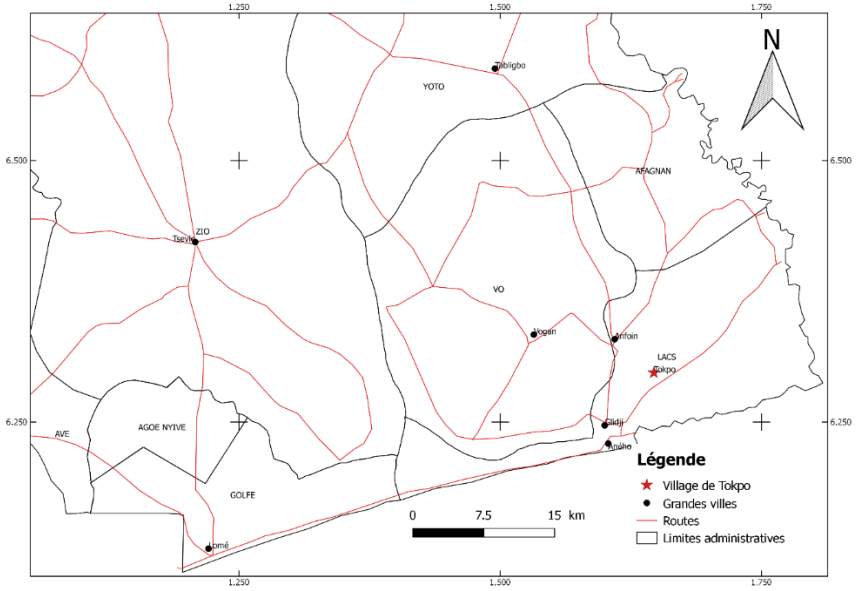


Figure 1: Location of the village of Tokpo

The basic raw material for SCoopS NOVI VA activities is cassava (*Manihot esculenta*). Cassava (a cash crop) and maize are the main agricultural resources mainly produced in the region. But beans, many other legumes and some energy wood plantations are also grown.

In the Tokpo area, as in other parts of Togo, farming practices have largely revolved around traditional subsistence agriculture until now. The farmers usually grow a few main crops (maize, cassava, and beans). Because of the irregular climate, there have been slight changes in the planting period for cassava. Cassava was planted after two weeks of sowing the maize (first weeding) and then followed by beans. But given the current amount of rainfall and the delay in the first rains of the year, it is planted at the same time or sometimes well before sowing the maize.

Cassava a species in the family Euphorbiaceae, and its root provides the raw material for the NOVI VA agricultural processing unit. A starchy rooted plant native to South America (Celis, 1982), it is one of the main starchy rooted plants cultivated in the world (Diallo et al. 2013). It has become one of the most important crops in the tropics and its total production in West Africa accounted for 29% of global production in 2008 (Diallo et al. 2013). Cassava is a perennial shrub cultivated for its roots, stem, and leaves. Its root is very rich in carbohydrates and is gluten-free (Laplace, 2015).

In Togo, as in most West African countries, the cassava root is mainly used for human consumption in various artisanal and industrial forms. It is also used for livestock feed (Diallo et al. 2013) and is also consumed raw on the farm.

The cassava root can be processed into several by-products (gari, attiéké, cossettes, starch, tapioca, fufu, raw flour, etc.) which are marketed (Diallo et al. 2013). It is also processed into bread flour, a high-quality flour used in making bread and pastry products (NOVI VA, unpublished data).

The choice of cassava processing by NOVI VA as an income-generating activity is not accidental. The choice of this crop is strongly linked to its ability to flourish even in the face of climate change – providing a foundation for an ecosystem approach that can cope with the adverse effects of climate change. Concerned about the effects of climate change, and the loss of biodiversity and the ecosystem services it provides, NOVI VA, in developing its agricultural industry, believes that it can contribute to the management of risks and natural disasters due to the effects of climate change in the Tokpo area and its surroundings.

Cassava, which is highly resistant to irregular rainfall (even with reduced productivity), is a valid response to their aspiration. Like all woody plants, it can sequester carbon (Moundzeo et al. 2015), provide energy (as wood energy) and contribute to the fight against soil erosion (Roose & Lelong, 1976). Nevertheless, it should be noted that cassava production leads to a progressive impoverishment of the soil if the farmers do not assist in restoring the soils physical and chemical qualities. It is therefore recommended that farmers use soil improvement techniques and agroforestry practices to maintain the fertility of soils.

1.2 FOUNDATION AND MEMBERS

In the 1950s, the Ganavé area, in which Topko is found, was equipped with a cassava processing unit, which facilitated the processing and sale of cassava products. The closure of the Ganavé processing plant around 1980, due to the devastating white fly pandemic (carrying the cassava mosaic virus disease [CMD]), increased the rate of poverty and misery due to the lack of jobs or underemployment in the area.

The subsequent socio-economic and food crises of the 1990s aggravated the precarious living conditions of the local communities. With the control of CMD three years later, thanks to the regional treatment of the area, the resumption of large-scale cassava production was possible. Production levels reached those attained before the closure of the factory. However, this quantity no longer finds ready buyers or large-scale processors, which has led the women of Tokpo to reflect and raise awareness about the problem.

In 1992, knowing that an individual struggle is not effective against the various socio-economic crises the women of Tokpo, having learned from the lessons of good practice and processing techniques from

the Ganavé unit, joined to develop a similar initiative. NOVI VA was created as a simplified cooperative society (SCoopS) to provide sustainable solutions for women farmers in Tokpo and its surroundings.

NOVI VA originally produced gari, tapioca and starch powder which it sold on the local market. Since 2015 it has innovated by producing bread flour and Tapioca laité. Sadly, following a scam by its micro-finance partner in 2016, it had to cease its activities. This led to a rapid deterioration in the socio-economic situation of its members. Despite being in this situation, the associative link between the members had not ceased. So, in 2019 this cooperative was identified as a beneficiary in the pilot phase of the implementation of the Forest and Farm Facility (FFF) mechanism managed by FAO, IIED, IUCN and Agricord as it started operations in Togo. Financial support and a series of trainings have improved the management and governance capacities within the cooperative and led to a revitalisation of activities.

Membership of SCoopS NOVI VA is open to any natural or legal person fulfilling the following conditions:

- Enjoy their civil and moral rights,
- To be a farmer, processor of agricultural products (especially cassava),
- Agree to abide by the provisions of the legal texts (Statutes and Rules of Procedure) and to submit to the decision of the majority,
- Not to belong to any cooperative society engaged in the same activities,
- Pay your membership fee,

SCoopS NOVI VA is administered by a Management Committee of five (05) members elected at the General Meeting for a period of three (03) years. The Management Committee is composed of a President, a Secretary, a Treasurer and two Councillors. They are elected by simple majority. Their functions are free of charge.

At its origin, NOVI VA was composed of twenty-six (26) active members, twenty-five (25) of whom were women and one (01) man. But today, it has thirty (30) members including twenty-nine (29) women. To be accepted as a member of the cooperative, the applicant must send a letter of application to the Management Committee. The latter decides on the application after two visits to the cooperative and sends a note to notify it of the decision taken. The admission of new members to the cooperative is subject to the prior acceptance of the Management Committee, which becomes final after the approval of the General Assembly.

1.3 BUSINESS PROPOSAL

In order to achieve greater economic resilience, the NOVI VA cooperative undertakes the artisanal processing of cassava into four main products: gari (granulated cassava flour), tapioca (granulated cassava starch), starch powder and cassava bread flour (used in baking). Gari and tapioca are packaged in 500 g or 01 kg packs, while starch powder and bread flour are packaged in 1 kg packs. In addition to these four products, NOVI VA also makes Tapioca laité to order. It should be noted that NOVI VA also sells gari by bowl in local markets until more customers are found for its packaged products.

The gari is mainly intended for direct consumption rather than tapioca and starch powder. Tapioca and starch powder are much more destined for export. Bread flour is mainly intended for local bakeries.

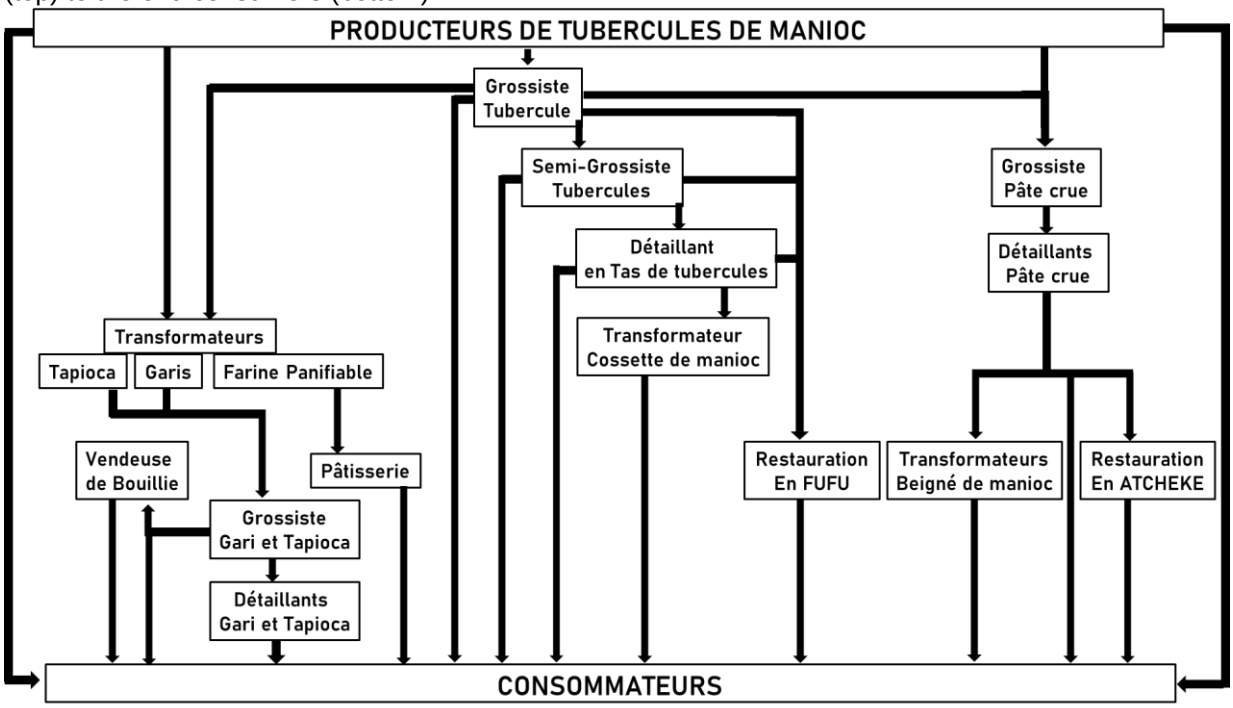
To expand its activities, the cooperative, with the support of the FFF, has developed a business plan that is currently being finalised. The implementation of this business plan will increase the production and marketing capacity of the SCoopS NOVI VA to 25 tons of gari and 12 tons of tapioca per year; improve the turnover of the SCoopS by at least 80% and the income of the women members by at least 40% and finally create employment for women and young people in the Tokpo locality.

1.5 MARKET CONTEXT

In the West African sub-region and particularly in Togo, there are several small artisanal production units in gari and tapioca. These units produce and sell directly on local markets and are direct competitors of the NOVI VA Cooperative.

However, NOVI VA goes beyond the usual pattern of trade and reaches directly to consumers in the capital city, given the quality of its products (especially gari, tapioca and starch powder), and its superior plastic packaging with distinctive logo. In this new marketing offensive, agreements and contracts for partnership and distribution of NOVI VA products are envisaged and are in the process of being formulated. Thus, a marketing plan has been defined.

Figure 1. Diagram in French showing the value chains of different products from the cassava producers (top) to the end consumers (bottom)



As a pioneer in the production of bread flour in Togo, competition in this field is not yet visible. However, it should be noted that plans to create a modern industry to produce this flour would threaten this activity.

While starch powder is mainly produced to order for customers from Benin and Ghana, the demand for gari, tapioca, starch powder and bakery flour is still strong in the sub-region. A modern cassava production and processing system is urgently needed to enhance the value of the cassava sector.

To improve its visibility as a cooperative, NOVI VA has participated in different agricultural fairs at national and international level. NOVI VA has also started the process of certification of its products with the Togolese Institute of Agricultural Research (ITRA). This certificate will give authenticity to NOVI VA's products which will be tested for their qualities meeting the international standards for good quality food products.

2. THE NATURE OF THE THREAT OF CLIMATE CHANGE

2.1 PERCEIVED CLIMATE CHANGE THREATS

Climate change is currently at the centre of concerns of both scientists and policy makers at the global level (Niang, 2009). It is perhaps the most significant challenge to human development (Boko, 1988; Brown & Crawford, 2008). Climate change is felt locally through several phenomena, namely: irregular rainfall, variability in daily temperatures, degradation of cultivable land and outbreaks of disease.

These changes alter agricultural and forestry production conditions. According to Caquet (2014) and Chanzy (2015), agricultural production conditions are becoming increasingly difficult due to climatic hazards. Agricultural production is directly influenced by climatic variability since agricultural systems depend in part on the nature of the climate (Boko et al. 2007; Mertz et al. 2009). This impact of climate variability on production systems is particularly important in developing countries such as Togo where agriculture is almost completely dependent on rainfall with few irrigation alternatives.

Agriculture is the main source of employment and income for most of the working population in Togo (PND, 2018-2022; Agossou et al. 2012; Delille, 2011; Enete & Onyekuru, 2011). The threats of climate change facing SCoopS NOVI VA include irregular rainfall, soil degradation and erosion in all its forms, as well as changing demographic pressures as people move to find land. These threats affect the yield of agricultural products in general, and cassava production.

The current agricultural production system developed by farmers around Topko is very rudimentary and is said to be the cause of soil poverty. Efforts to raise awareness of their problems with extension services of the ministries in charge of agriculture and the environment have led to several actions by technical and financial partners at the farmers' locations.

2.2 IMPACT ON FOREST AND AGRICULTURAL RESOURCES

Climate change impacts on forest resources are substantial. The high level of deforestation in the Tokpo area and its surroundings is due to the constant search for cultivable land as yield losses due to climate change exacerbate the problems caused by a growing population. Deforestation is also caused by the search for wood energy used in households for cooking and cassava processing.

Apart from declining agricultural yields, communities in Tokpo and its surroundings are facing the disappearance of forest resources in general, and fuelwood used as the main source of energy for processing. The women of NOVI VA are faced with this phenomenon and use crop residues, coconut husks and gas in cassava processing.

In terms of impact linked to agricultural resources, in the Tokpo area and its surroundings, producers had originally practiced the cultivation association (manioc plus maize). This intercropping was demanding in terms of nutrient use, especially for the development of maize. However, given the harmful effects of climate change (irregularity of rainfall, soil quality, etc.), producers have been forced into a cassava monoculture system, which is more resistant to climatic hazards.

Even with that change, the irregularity of the rains has led to a drop in the yield of cassava fields, the main raw material of the NOVI VA Cooperative. These climatic irregularities also have an impact on the duration and intensity of the droughts that threaten food security.

The low cassava yield observed today is also partly due to the use of rudimentary production techniques. Land degradation due to overexploitation of the soil by local communities under the effect of demographic pressure is widespread. As will be discussed below, this can be corrected by the use of annual fallow techniques (sowing *Mucuna pruriens* in the off-season) and the practice of agroforestry systems with nitrogen fixing trees such as *Leucaena leucocephala* and other fast-growing fertilising plants to maintain the physicochemical quality of the soil and avoid overexploitation.

2.3 IMPACT ON BUSINESS AND FINANCE

Given the effects of climate change on agricultural production and forest resources, the NOVI VA Cooperative, whose basic raw material is cassava tubers, finds itself with low productivity cassava. The low yield of cassava seen today leads to an increase in the cost of this raw material, both for sale on the farm and after harvest.

Cassava harvesting is not easy. It varies according to the weather, the season, and the type of soil. At the beginning of the rainy season it is less expensive, but it becomes very expensive in the dry season when harvesting is very difficult, especially on the hardened clay soil of Tokpo and its surroundings.

In the NOVI VA Cooperative, the driving force behind harvesting is manual labour. In this agricultural industry, the processing is artisanal and respects the rainy calendar for a better quality of the products. The increase in the duration and intensity of the dry period leads to a reduction in the cassava processing period in the year. During the dry season, when cassava harvesting is very difficult and painful, the cooperative's productivity drops because access to the raw material is limited. To meet the cooperative's production objectives, NOVI VA uses external labour for cassava tuber harvesting and some production work.

The low yield of cassava, the lack of wood energy for processing, the shortening of the production period, and the increase in other cassava processing costs lead to a decrease in the income of the NOVI VA agricultural enterprise. As a result, it is becoming increasingly difficult to save and invest for the future. To add value to its declining production, NOVI VA has been working on the quality and price of its products. Thus, thanks to the packaging and the certification process that is currently underway, it will be on all markets with a good guarantee of quality and at prices that will defy all competition.

2.4 IMPACT ON VULNERABLE GROUPS

The FFPO NOVI VA consists almost entirely of women (97%; n = 29) whose main source of income is cassava processing. Cassava is procured through purchases from farmers in Tokpo and its surroundings. The production and harvesting of cassava require a certain state of health. With climate change, the increasing cost of cassava production and processing has led to a decrease in the income of the cooperative members and the income of the young people who are used as temporary labour. Thus, the incomes of the different actors in the cassava production and processing chain are negatively impacted.

No actor in the cassava chain is spared the negative effects of climate change. If we take the case of the young men who are employed in the cassava harvest, their remuneration is linked to the size of the field or the quantity of cassava harvested, which is evaluated in six-tonne trucks. For a truckload of harvested cassava, the effort required becomes greater and greater and varies according to the density of the cassava plants, their productivity, the fertility of the soil and the abundance of rainfall.

NOVI VA in its packaging policy to have a more resilient profit margin, wants to improve the living conditions of its employees throughout the cassava production and processing chain. Thus, in developing future plans, the FFPO is focusing on new production and processing techniques, seeking donors and technical and financial partners for capacity building of stakeholders and providing the NOVI VA farm enterprise with a solid base (modern centre, processing equipment, basic funds, etc.) to meet the needs of its clients, employees and members.

3. THE BUSINESS AND FINANCIAL MODEL RESPONSE TO IMPROVE CLIMATE RESILIENCE

3.1 AGRO-ECOLOGICAL DIVERSIFICATION

NOVI VA Cooperative has been working hard to establish links with new technical and financial support partners. Inputs from those partners (including the FFF programme) have helped their members to build understanding of climate change and the resilience measures to be adopted. For example, in terms of cassava production, they have led to improved farmers' awareness regarding the application of new, highly resilient agricultural and agroforestry practices.

To increase the productivity of cassava plants, research is underway to use varieties known for their high productivity, resilience to climate change, and tolerance of pests and diseases. A school field is planned for the multiplication of cuttings of these varieties, followed by extension at the level of NOVI VA cassava farmers.

In order to increase their cassava production, some farmers in the area are using new fallow systems (using Mucuna) and new agroforestry techniques such as the combination of crops (maize and cassava) with leguminous nitrogen fixing trees (such as *Leucaena*) in the fields. They also practice soil conservation methods using organic manure from livestock (small ruminants and poultry). Organic composting has become much more frequent. Farmers are starting to introduce short-term crop rotation patterns that include agroforestry and the use of fast-growing, nitrogen fixing tree and shrub species – that increase soil fertility.

To improve the fertility of cultivable soils, sensitisation, and training of producing farmers is underway. There have been trainings in how to improve the physical and chemical quality of soils, in particular training on ‘GIFERC’, an integrated and biological soil fertility management technique that has been organised with the support of the FFF and has proved its worth in other localities in Togo. It includes the establishment of composting sites and a traditional system of grazing sheep and goats in cassava fields for specific soil improvement purposes.

To make cassava processing more resilient, the women of SCoopS NOVI VA have been trained in agroforestry techniques to help produce the fuel wood they need for cassava processing. This training has enabled them to consider actions to adapt to climate change phenomena. To date, NOVI VA has one hectare of energy wood (*Eucalyptus sp*.) and plans to increase this area in the coming years. It also plans to set up a wood energy nursery to help reforestation in the locality. Ultimately, they may also be able to sell fuelwood.

As a temporary measure to solve the lack of wood energy, the cooperative uses highly combustible coconut shells and agricultural residues. This will eventually be replaced by the FFPOs own fast-growing fuelwood plantation that it plans to expand in the coming years to provide fuelwood resources for its processing activities. The cooperative has also acquired gas ovens, which it has begun to experiment with to gradually limit the use of wood energy.

3.2 ECONOMIC DIVERSIFICATION

Economic resilience will be enhanced by improving the number of product lines and investigating markets into which these can be sold. SCoopS NOVI VA has developed new packaging processes to add value to its products. Following training on Market Analysis and Development (MAD) tools for its members in the framework of the implementation of the Forests and Farmers Facility (FFF) in Togo, the cooperative carried out an analysis of its marketing chain. It decided to make its products available directly to consumers after packaging.

Today, the cooperative already sells its products at higher prices with more resilient profit margins. It has in fact recouped its profit margins from intermediaries while improving the presentation of its products, which has become more reassuring for both local and international consumers.

3.3 SOCIAL DIVERSIFICATION

In terms of strengthening its social networks and services, NOVI VA belongs both to the Central Cereal Producers' Association of Togo (CPC), and to the overarching Togolese Coordination of Farmers' and Agricultural Producers' Organisations (CTOP). Both organisations have helped NOVI VA identify useful contacts and bring in project support – including through the FFF as described below in the section on partnerships.

NOVI VA is today made up of approximately 97% women (n = 29) and this proportion is unlikely to change since membership is open almost exclusively to women (a vulnerable group). Although this rule is not enshrined in the statutes and internal rules of the cooperative, women in the FFPO retain the majority share and so maintain this structure.

At present the cooperative has a rule that only young women can join. However, it has a special status for older women within the cooperative. Non-members (who have not respected their commitments to the NOVI VA cooperative), and young men are recognised as users or temporary labourers, working in the NOVI VA agricultural enterprise, and are paid in proportion to the tasks performed.

3.4 OTHER RESILIENCE MEASURES

3.4.1 PARTNERSHIPS

SCoopS NOVI VA is one of the 10 cooperatives selected to participate in the FFF in Togo. The FFF team have helped to link NOVI VA to technical, commercial, or financial partners in connection with the climate programmes that have helped to diversify production including:

- GIZ Togo, which has kindly given its financial support for the implementation of the FFF in Togo.
- FAO, IIED, AGRICORD and IUCN who are co-management partners of FFF and help to bring technical support.
- The Coordination Togolaise des Organisations Paysannes et des Producteurs Agricoles (CTOP) and the Centrale des Producteurs de Céréales de Togo (CPC) are the implementing partners of the Forest and Farmers Mechanism in Togo.

This combination of partners has supported NOVI VA in capacity building (technical and organisational support) and working materials. The latter two associations are also involved at the commercial level in researching the market for the delivery and sale of NOVI VA's cassava processing products.

3.4.2 CLIENTS

Previously, NOVI VA only sold its products in markets near Tokpo. But with the packaging of its products, it can reach consumers directly without going through wholesalers (intermediaries). The products are placed in kiosks and general food shops and supermarkets as a sales depot directly accessible to end consumers. Now, sales are not really taking off because advertising for NOVI VA products is not yet well established. However, NOVI VA often gets good feedback from the consumers of its products. The marketing initiative is at its very early stages and will surely bear fruit in the future.

3.4.3 COMMERCIAL STRATEGY

Gari and tapioca in Togo are currently mainly sold in bowls on the main paths or streets. To ensure economic resilience by diversifying markets and the sale of its products, NOVI VA packages its products in 0.5- and 1-kilogram bags. Tourists and executives on the move in supermarkets are interested and pay for its packaged products which are very easy to transport.

With its new "Made in Togo" labelling and packaging, NOVI VA will increase this economic resilience by attracting more customers and ensure the climatic resilience of the producers. As far as price and product lobbying is concerned, NOVI VA makes its customers affordable prices not far away from the purchasing power of most of the population. It considers fluctuations in product costs on the markets.

Given their qualities, SCoopS NOVI VA's "Made in Togo" products are in supermarkets in Togo.

SCoopS NOVI VA mainly uses social networks to popularise its products. A graphic designer is currently being mobilised to design leaflets to be shared on social networks.

4. CONCLUSIONS

4.1 MAIN CONCLUSIONS

The viability of this climate resilient model is based mainly on three elements:

- Technical and financial support to producers to make the raw material available: SCoopS NOVI VA to develop its cassava production and processing chain, calls on technical and financial partners to support its producers. Following partner support, it promotes the use of integrated soil fertility management techniques among its cassava producers to improve yields and long-term resilience in the face of climate change. It researches and plants high-yield varieties to further encourage producers. NOVI VA must be supported in developing techniques to improve the physical and chemical quality of the soil. The region's soils have been exploited for a long time and, under the effects of climate change, they have become very infertile. These soils need compost inputs to restore their physical and chemical qualities. The NOVI VA cooperative needs to be supported in raising awareness and training its producers on techniques for crop association, crop rotation, etc.

- Availability of energy resources for cassava processing: To address this very important concern, NOVI VA has made a transition to the use of coconut husks, cassava residues and gas ovens. The cooperative also has a plantation of 1 ha of fast-growing energy wood, which it uses for processing in case of energy wood breaks. It plans to increase this area of fuelwood in the coming years. The increasing extent of agroforestry systems will also improve fuelwood availability.

- Product packaging and marketing: NOVI VA in its search for added value to its products has invested in the presentation of its products (gari, tapioca, cassava starch and bread flour) by using specific "Made in Togo" packaging. It has also launched the certification process for more visibility for its products.

4.2 INVESTMENT CHALLENGES

The investment challenges of the NOVI VA Simplified Cooperative Society are twofold:

- Improving NOVI VA's resilience involves reorganising its transformation unit, reorganising its management mechanism, structuring its products and ensuring the availability of energy sources for transformation.

- The search for financing and partnerships for a strategy more resilient to climate change: NOVI VA is seeking the support of technical and financial partners to intervene with its producers to guarantee the availability of cassava.

4.3 BENEFITS AND THEIR DISTRIBUTION

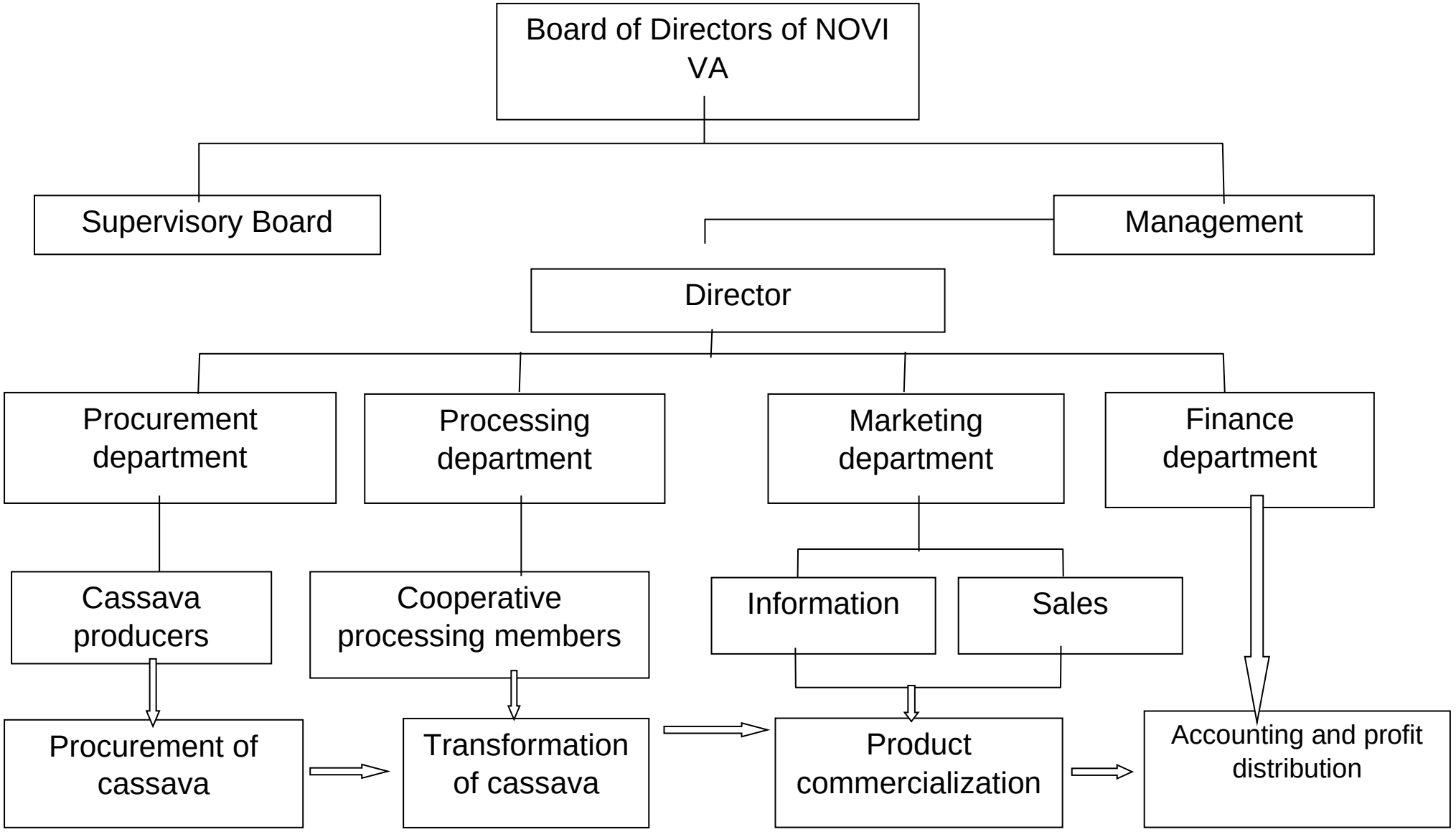
The elements of this diversified production basket that have generated the highest returns are among others:

- At the production site level, the use of cuttings of selected high-yield varieties that adapt to climate change, the amendment of cultivable soils, the use of new production techniques (association of cassava with legumes).

- At the level of the processing unit, the introduction of the packaging process with the "Made in Togo" brand is being discussed. The certification process is underway and will need to be accompanied by new communication and marketing policies.

- The distribution of benefits: the profit margin is distributed according to the NOVI VA farm management procedure manual but considers the most vulnerable groups.

ANNEX 1: NOVI VA ORGANIZATION CHART



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